

CHARACTERIZATION OF THE EFFECT OF HISTAMINE IN MICE CORPUS CAVERNOSUM

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The use of H₂-antagonists for the treatment of peptic ulcer disease has been associated with reports of erectile failure. Isolated human corpus cavernosum tissue studied in vitro shows indeed a relaxing influence of histamine and injections of histamine intracavernously in human cause erection in all patients. These functional observations and the fact that histamine-containing mastocytes have been identified in erectile tissue indicate that histamine may play a role in human penile erection. However, the mechanisms involved seem to be species-dependent. As mice cavernosal tissue is proposed as a good model for human tissue, the present study aimed to found out some characteristics of the effect of histamine on this tissue. The study was performed using an in vitro organ bath technique for measuring isometric tension changes of isolated corpora cavernosa using a Krebs-Ringer bicarbonate solution bubbled with 95% O₂-5% CO₂ at 37°C. At basal resting tension, the addition of histamine had no influence on tone. On precontracted (norepinephrine 5 µM) preparations histamine elicits a strong relaxing effect (pEC₅₀ = 4.95 ± 0.11; E_{max} = 87.02 ± 2.82; n = 26). The concentration-relaxation curve of histamine is shifted to the right (without inhibition of E_{max}) in the presence of H₂-receptor antagonist cimetidine (0.1 mM), but not in the presence of H₁-receptor antagonist pyrilamine (10 µM). In preparations pretreated with cimetidine, the additional presence of pyrilamine or the H₃-receptor antagonist thioperamide (10 µM) did not further inhibit the relaxing effect of histamine. The presence of histamine (10 µM) did not influence the relaxing effect elicited by electrical field stimulation. Addition of H₂-agonist dimaprit elicited a substantial relaxation of precontracted preparations. It is concluded that histamine elicits a strong relaxation of mice corpus cavernosum by activation of H₂-receptors and does not interfere with mice cavernosal nervous erectile activity in vitro.